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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,474	12/01/2003	Masood Murtuza	TI-35639	5891

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EXAMINER

DICKEY, THOMAS L

ART UNIT PAPER NUMBER

2826

DATE MAILED: 08/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,474

Applicant(s)

MURTUZA, MASOOD

Examiner

Thomas L. Dickey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,8,10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8,10 and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/20/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. The amendment filed on 02/20/2006 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-8, 10, and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by TSAU (2002/0038903).

With regard to claims 1-5, 7-8, and 10, Tsau discloses a semiconductor device comprising a substrate 102; a plurality of inter-level dielectric (ILD) layers 108, 116, 146, 156, 166 each having a low dielectric constant (note paragraphs 0067 and 0069); and at least one support structure 128, 138, 148, 158, 168 (tungsten support material vias, note paragraph 0068) disposed in each of the ILD layers 108, 116, 146, 156, 166 at locations overlying each other so that support structures 128, 138, 148, 158, 168 overlie each other in the plurality of layers 108, 116, 146, 156, 166; at least one additional ILD layer 169 having a dielectric constant which is higher (note paragraph 0069) than the low-k ILD layers 108, 116, 146, 156, 166 overlying the low-k inter-level dielectric layers; and a contact

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layer M5 (including contacts 170 and 175, note paragraph 0079) overlying the at least one additional ILD layer 169 and the support structures 128,138,148,158,168, wherein at least one ILD layer has an ultra low dielectric constant (again, note paragraphs 0067 and 0069), the support structures 128,138,148,158,168 are located underneath bond pad location 170 (the alleged source of stress), and the at least one support structure 128,138,148,158,168 ends at the at least one additional ILD layer 169.

With regard to claims 12-14 Tsau discloses a semiconductor device comprising a substrate 102; a plurality of inter-level dielectric (ILD) layers 108,116,146,156,166 each having a low dielectric constant (k): and a least one support structure 128,138,148,158,168 disposed in each of the ILD layers 108,116,146,156,166 at locations overlying each other so that support structures 128,138,148,158,168 overlie each other in the plurality of layers 108,116,146,156,166; at least one additional ILD layer 169 having a dielectric constant which is higher than the low-k ILD layers 108,116,146,156,166 overlying the low-k inter-level dielectric layers: and a contact layer M5 (including contacts 170 and 175, note paragraph 0079) overlying the at least one additional ILD layer 169 and the support structures 128,138,148,158,168; wherein a plurality of support structures 128,138,148,158,168 are disposed in the at least one of the low-k dielectric layers in an $n \times m$ matrix (note figures 5c 5e, 5g, and 5i) configuration, where n and m are integers greater than one, wherein a plurality of support structures 128,138,148,158,168 are disposed in the at least one low-k dielectric layer at a plurality

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of locations spaced equidistant apart from each other across substantially the entire layer, and the plurality of support structures 128,138,148,158,168 are disposed at a location below a bond pad location 170 disposed on the semiconductor device.

The applicant's claims 1,5, and 12 does not distinguish over the Tsau reference regardless of the functions allegedly performed by the claimed device, because only the device per se is relevant, not the recited functions of mitigating damage of the semiconductor device caused by stresses to the ILD layers 108,116,146,156,166 and mitigating damage of the ILD layer due to forces applied onto the ILD layer during one of a subsequent processing and packaging of the semiconductor device.

Note that functional language in a device claim is directed to the device per se, no matter which of the device's functions is referred to in the claim. See *In re Ludtke and Sloan*, 169 USPQ 563 at 567, and *In re Swinehart* 169 USPQ 226, both of which make it clear that it is the patentability of the device per se which must be determined in a "functional language" claim and not the patentability of the function, and that an old or obvious device alleged to perform a new function is not patentable as a device, whether claimed in "functional language" claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear. See also *In re Schreiber*, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997), for a discussion of the roles of examiner and applicant in determining when and how functional limitations distinguish a claim from prior art disclosing the same structure.

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Response to Arguments

3. Applicant's arguments with respect to claims 1-5, 7-8, 10, and 12-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

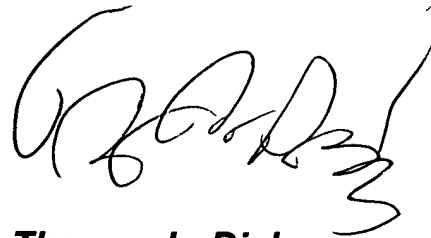
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thomas L. Dickey', with a stylized flourish at the end.

Thomas L. Dickey
Primary Examiner
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